

COASTAL PLAIN DEPRESSION SWAMP (MIXED SUBTYPE)

Concept: Coastal Plain Depression Swamps are depressional wetlands with a well-developed, closed or nearly closed tree canopy of *Taxodium ascendens* or *Nyssa biflora* but without a dense graminoid-dominated herb layer. They may or may not have a well-developed shrub layer. They are associated with deeper flooding than Small Depression Pocosins or Nonriverine Swamp Forests. The Mixed Subtype covers examples that do not have the characteristics of the other subtypes. They have shrub layers containing a mix of characteristic pocosin and swamp species. They are generally less deeply flooded than the Cypress Dome Subtype.

Distinguishing Features: Small Depression Swamps communities are distinguished from other Coastal Plain Depression Communities by the occurrence of a well-developed canopy of *Taxodium ascendens* or *Nyssa biflora* in a depressional wetland, without a well-developed herb layer. The shrub layer may range from dense to absent. Small Depression Pocosins can have an appreciable cover of these tree species but they do not form a well-developed canopy and are usually associated with pines. Small Depression Swamps are distinguished from other *Taxodium*- and *Nyssa*-dominated swamps, such as Nonriverine Swamp Forest and Cypress–Gum Swamp, by occurring Carolina bays, limesinks, or other closed depressions that are periodically ponded but lack river flooding.

The Mixed Subtype is distinguished from the Pocosin Subtype by the shrub layer having a significant component of species not characteristic of pocosins, such as *Cephalanthus occidentalis*, *Morella cerifera*, *Eubotrys racemosa*, *Itea virginica*, *Leucothoe axillaris*, and *Arundinaria tecta*, with only subordinate amounts of *Cyrilla racemiflora*, *Lyonia lucida*, *Ilex glabra*, *Ilex coriacea*, or *Zenobia pulverulenta*. It is distinguished from the Cypress Dome Subtype by lacking *Ilex myrtifolia* and by having other shrubs present.

Synonyms: *Taxodium ascendens* / (*Nyssa biflora*) / *Leucothoe racemosa* - *Lyonia lucida* - *Morella cerifera* Depression Forest (CEGL007420). Nonriverine Swamp Forest (3rd Approximation). Ecological Systems: Southern Atlantic Coastal Plain Depression Pondshore (CES203.262).

Sites: Coastal Plain Depression Swamps usually occur in Carolina bays, larger limesinks, or occasionally in swales in relict dune systems.

Soils: Soils may be sandy, loamy, or clayey, and generally have little or no organic surface. Most examples are treated as inclusions in soil mapping.

Hydrology: The range of hydrology is not well known but flooding appears to be shallow to moderate and not to typically persist long into the growing season. It is uncertain if soils dry or remain saturated after drawdown.

Vegetation: The vegetation has a closed or somewhat open tree canopy dominated by *Taxodium ascendens* or *Nyssa biflora* or both. *Acer rubrum* var. *trilobum*, *Magnolia virginiana*, *Persea palustris*, or occasionally *Liquidambar styraciflua* may be present in the canopy or as an understory. The shrub layer is usually moderate to fairly dense but may be denser on the drier edges. It often contains substantial numbers of pocosin species, especially *Cyrilla racemiflora* and

Lyonia lucida, less often *Ilex glabra* or *Lyonia ligustrina*. The shrub layer also contains species not typical of pocosins, such as *Vaccinium formosum*, *Vaccinium fuscatum*, *Eubotrys racemosa*, *Morella cerifera*, *Clethra alnifolia*, *Itea virginica*, *Decodon verticillatus*, and rarely *Litsea aestivalis*. Vines, particularly *Smilax rotundifolia* or *Smilax laurifolia*, can form dense tangles. Herbs are often nearly absent or sparse, but denser patches may be present. *Sphagnum* spp. often is present. *Saururus cernuus*, *Juncus repens*, *Carex striata*, *Anchistea virginica*, *Lorinseria areolata*, *Panicum verrucosum*, or other species occur in some examples, all with very low constancy. *Tillandsia usneoides* may drape the trees, and *Hypericum walteri* or *Hypericum virginianum* may occur on tree bases and cypress knees.

Range and Abundance: Ranked G3. The synonymized associated ranges from North Carolina to Louisiana. It appears rare in North Carolina, though it ranges throughout the Coastal Plain and some examples may be overlooked. It may be more frequent in South Carolina, where clay-based Carolina bays are more numerous (Bennett and Nelson 1991).

Associations and Patterns: Coastal Plain Depression Swamps tend to fill entire basins. They are naturally bordered by dry or wet longleaf pine communities on their upland edges. Few of the remaining examples have intact surrounding vegetation.

Variation: Known examples are extremely variable, from ones transitional to the Pocosin Subtype to those with few pocosin shrubs. Perhaps most distinctive are those with *Decodon verticillatus* dominant in the shrub layer. Only one such example has been documented in North Carolina but several are known in South Carolina. No variants are recognized at present but they may be warranted.

Dynamics: The dynamics of the Mixed Subtype are particularly poorly known. The shrub layer is dense enough to potentially carry fire in some examples but not in others. The shrub component tends to be a mix of flammable and less flammable species. As in all Coastal Plain Depression Communities, fluctuating water levels may cause changes from year to year, but the long-lived woody vegetation is unlikely to change as much as in herbaceous communities.

Comments: This community is one of the least well understood of the Coastal Plain wetlands. With low potential for rare species, dense vegetation, and sometimes resemblance to more altered forests, site surveys often produce limited description. CVS data are limited, and the variability of vegetation makes classification of the existing plot data difficult. Nifong's (1998) grouping that best fits the Coastal Plain Depression Swamps had 10 vegetation types defined, 9 of them from a single site and most from a single plot.

The ecological factors that drive the occurrence of this community and separate it from other Coastal Plain Depression Communities are unclear. Many of the scarce examples are in altered landscapes and occur without natural context and may be altered as well. More work is needed on how to distinguish this community from successional vegetation that may grow up in more open wetlands with altered hydrology and fire exclusion. However, enough examples are known in better conditions to support belief in a natural community type. However, the relationship among the subtypes and the relationship of this subtype with Small Depression Pocosins, Cypress Savannas, and successional vegetation needs further investigation.

Nifong (1998) recognized several associations within the vegetational variation covered by this subtype: *Nyssa biflora* - *Taxodium ascendens* / *Liquidambar styraciflua* / *Ilex amelanchier* (9.1.1); *Nyssa biflora* - *Taxodium ascendens* / *Decodon verticillatus* / (*Smilax laurifolia*) / *Utricularia purpurea* (8.0.3); *Taxodium ascendens* / *Nyssa biflora* - *Acer rubrum* / (*Leucothoe racemosa* - *Vaccinium* spp. - *Zenobia pulverulenta*) / *Sphagnum* Bog (8.0.6).

Rare species: Vascular plants: *Litsea aestivalis* has been found in one example. No other rare species are known.

References:

- Bennett, S.H., and J.B. Nelson. 1991. Distribution and status of Carolina bays in South Carolina. South Carolina Nongame and Heritage Trust Publications No. 1.
- Nifong, T.D. 1998. An ecosystematic analysis of Carolina bays in the Coastal Plain of North Carolina. Ph.D. Dissertation, University of North Carolina, Chapel Hill.